

REMARKS/ARGUMENTS

Claims 26-30 and 32-41 are pending in the application. By this Amendment, claim 31 is cancelled and claims 33-41 are added. Reconsideration and withdrawal of the rejections in view of the foregoing amendments and the following remarks is respectfully requested.

I. Restriction Requirement

The Office Action makes the Restriction Requirement set forth in the March 13, 2003 Office Action final and withdraws claim 31 from consideration. Accordingly, by this Amendment, claim 31 is cancelled.

II. Claims 26 and 29

The Office Action rejects claims 26 and 29 under 35 U.S.C. §103(a) over Armell (U.S. Patent No. 5,819,353), in view of Woehleke (U.S. Patent No. 5,797,993). Because the asserted combination fails to disclose or suggest all the features of claims 26 and 29, the rejection is respectfully traversed.

The details of the Woehleke expandable pipeline pig assembly are fully set forth in the Amendment filed June 13, 2003. As explained therein, Woehleke fails to disclose or suggest a pipeline pig having blades with a peripheral edge configured to perform a rotational cleaning

action on the inner surface of a tubular bore. In addition, the Woehleke pipeline pig does not have any type of fluid bypass path.

Armell is directed to a tool for cleaning or conditioning tubular structures such as well casings. As shown in Figure 1, the tool includes a cylindrical body upon which a plurality of cleaning elements are mounted. In the figures, the cleaning elements 12 comprise brushes which are mounted on brush retaining sleeves 5-9. At column 5, lines 47-58, Armell indicates that the cleaning elements 12 may not be formed as brushes including a plurality of projecting pins. Instead, the cleaning elements could be blades, fingers, differently shaped or profiled pins, or other shapes. Specifically, Armell indicates that they could be rectangular, flat, steel strips bonded to a rubber or other resilient backing block.

As shown in Figure 2, the cleaning elements 12 are spaced 90 degrees apart around the circumference of the tool. Channels 13 are located between adjacent pairs of the cleaning elements 12. The channels 13 allow fluid to flow past the brushes.

In addition, the tool includes an upper stabilization sleeve 3, and a lower stabilization sleeve 4. As shown in Figure 3, the upper stabilization sleeve 3 and the lower stabilization sleeve 4 include a plurality of stabilizer inserts 23 which are intended to contact the inner surface of the tubular bore. The upper and lower stabilization sleeves ensure that the cleaning tool remains centered within a tubular bore as it passes through the bore.

Claim 26 is directed to a pig for use in a tubular bore. Claim 26 recites a cylindrical elongate body and one or more blades mounted on the body, wherein each blade comprises one or more reaction surfaces. Claim 26 further recites that each blade comprises at least one fluid bypass path through the blade to permit a flow of fluid to pass the pig.

It is respectfully submitted that neither Armell nor Woehleke disclose or suggest a pipeline pig having a cylindrical body and one or more blades with at least one fluid bypass path through the blade. As discussed above, Woehleke fails to disclose or suggest any type of fluid bypass. As also discussed above, the Armell cleaning tool is configured to include fluid bypass channels 13 which are located between the cleaning elements 12. Armell fails to disclose or suggest that the cleaning elements 12 would include any type of fluid bypass path. Furthermore, there is no reason for the cleaning elements 12 of the Armell device to have a fluid bypass path because the tool is specifically configured to include the fluid bypass channels 13 between the cleaning elements 12.

Because neither Armell nor Woehleke disclose or suggest the above discussed features of claim 26, it is respectfully submitted that claim 26 is allowable. Claim 29 depends from claim 26 and is allowable for at least the same reasons. Accordingly, withdrawal of the rejection of claims 26 and 29 is respectfully requested.

III. Claims 27 and 28

The Office Action rejects claims 27 and 28 over Armell, in view of Woehleke, and further in view of Nose (U.S. Patent No. 5,068,142). The rejection is respectfully traversed.

Claims 27 and 28 depend from claim 26. As discussed above, Armell and Woehleke fail to disclose or suggest all the features of claim 26. Nose fails to cure the deficiencies of Armell and Woehleke. Accordingly, it is respectfully submitted that claims 27 and 28 are allowable over Armell, Woehleke and Nose for all the reasons discussed above in connection with claim 26. Withdrawal of the rejection is respectfully requested.

IV. Claim 30

The Office Action rejects claim 30 under 35 U.S.C. §103(a) over Armell, in view of Woehleke, and further in view of Knapp (U.S. Patent No. 4,603,449). The rejection is respectfully traversed.

Claim 30 depends from claim 26. As discussed above, Armell and Woehleke fail to disclose or suggest all the features of claim 26. Knapp fails to cure these deficiencies. Accordingly, it is respectfully submitted that claim 30 is allowable over Armell, Woehleke and Knapp for all the reasons discussed above in connection with claim 26. Withdrawal of the rejection of claim 30 is respectfully requested.

V. Claim 32

The Office Action rejects claim 32 under 35 U.S.C. §103(a) over Armell, in view of Woehleke, and further in view of Nishino (U.S. Patent No. 4,081,875). The rejection is respectfully traversed.

Claim 32 is directed to a method of cleaning a tubular bore. Claim 32 recites selecting a pig according to claim 26, wherein the pig comprises a maximum outside diameter less than an internal diameter of the tubular bore. Claim 32 further recites inserting the pig into the tubular bore, and providing pressurized fluid to the tubular bore. Claim 32 recites that the step of providing pressurized fluid applies a force to the reaction surface of each blade which urges the pig to travel through the tubular bore in a generally axial direction, to rotate about its longitudinal axis, and further urges a longitudinal axis of the pig to orbit about a substantially parallel longitudinal axis of the tubular bore.

Claim 32 specifically contemplates a method wherein the outside diameter of the blades of the pipeline pig are smaller than the inside diameter of the tubular bore. This allows the pipeline pig to move in a radial direction within the bore. Claim 32 recites that as the pipeline pig rotates within the bore, the pipeline pig also orbits in a circular fashion around the central longitudinal axis of the tubular bore to allow the blades to contact the inner surface of the bore to thereby provide a cleaning action.

It is respectfully submitted that Armell, Woehleke and Nishino fail to disclose or suggest a method as recited in claim 32. Specifically, the Armell, Woehleke and Nishino pipeline pigs are all designed to have scrapper blades or brushes which directly abut the inner surfaces of the tubular bore on all sides, simultaneously, in order to provide a cleaning action. None of the references disclose or suggest a method wherein the outer diameter of the pipeline pig blades are smaller than the inner diameter of the tubular bore, and wherein the longitudinal axis of the pig orbits about a longitudinal axis of the tubular bore. Nishio discloses a spiral shaped blade 2, with an external diameter that is smaller than the internal diameter of the tubular bore. However, this spiral blade 2 is only intended to rotate the main body of the pig 1. The spiral blade 2 is not intended to contact the inner surface of the tubular bore to provide a scraping or cleaning action. For at least these reason, it is respectfully submitted that claim 32 is allowable and withdrawal of the rejection of claim 32 is requested.

VI. New Claims 33-41

By this Amendment, claims 33-41 are added to the application. Claims 33-37 are ultimately depend from claim 26. It is respectfully submitted that claims 33-37 are allowable for at least the reasons discussed above in connection with claim 26.

Claim 38 is a new independent claim directed to a pig for use in a tubular bore. Claims 39-41 depend from claim 38.

Claim 38 is allowable because none of the references of record disclose or suggest a pig having a plurality of blades rigidly mounted to a body of the pig, wherein each blade comprises a peripheral edge configured to contact an inner surface of the tubular bore and to perform a rotational cleaning action on the inner surface of the bore, and wherein each blade is configured to cause the pig to rotate about its longitudinal axis when a pressurized fluid pushes the pig through the tubular bore.

Of all the references cited in the Office Action, only Nishino discloses a device having a spiral blade which would cause the pig to rotate when a pressurized fluid pushes the device through a tubular bore. However, as noted above, the spiral blade of the Nishino device does not have peripheral edges which are configured to contact an inner surface of the tubular bore. Instead, the Nishino device is deliberately constructed so that the spiral blade does not contact the inner surface of the tubular to perform a cleaning action. The spiral blade is merely designed to throw fluid within the bore against the inner walls of the bore. The only portion of the Nishino device which is intended to scrape along the inner surfaces of the bore is the scrapper blade 6, which is not rigidly mounted to the main shaft 1. In addition, the scrapper blade 6 is not configured to cause the shaft 1 to rotate.

In contrast, a device as recited in claim 38 includes a plurality of blades which are configured to both scrape against the inner surfaces of a tubular bore to provide a cleaning

Serial No. 09/600,902
Amdt. dated October 29, 2003
Reply to Office Action of June 30, 2003

Docket No. KC-043

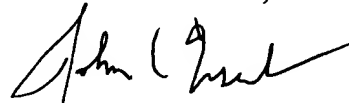
action, and to cause the device to rotate. It is respectfully submitted that claims 38-41 are allowable for at least these reasons.

VII. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
FLESHNER & KIM, LLP



John C. Eisenhart
Registration No. 38,128

P.O. Box 221200
Chantilly, Virginia 20153-1200
703 502-9440 JCE/jlg
Date: October 29, 2003

Please direct all correspondence to Customer Number 34610